

# Lenovo Intel Select Solution

## for Network Functions Virtualization Infrastructure (NFVI)

Reduce time to value with configurations verified with Red Hat OpenStack

### Overview

Communications service providers (CoSPs) are looking to transform their infrastructure to better support 5G and IoT. Data traffic over communications networks is expected to continue to grow rapidly over the next decade. As a result CoSPs are evaluating and implementing Network Functions Virtualization (NFV). This allows running applications in a performance-optimized, secure and cost-effective manner – spanning the data center to the central office and to the network edge. Cloud-scale agility, scalability and rapid deployment of network services are critical considerations guiding CoSPs as they deploy this next-generation infrastructure.

### Lenovo and Intel

Lenovo and Intel are collaborating on solutions to simplify the selection and deployment of hardware and software needed for today's network workloads and accelerate CoSPs' migration to NFV-

To achieve the goal of accelerating NFV deployments, Lenovo has launched validated configurations of Lenovo ThinkSystem SR650 and SR630 Servers and Lenovo Ethernet switches as part of Intel® Select Solution for NFVI. Based on Intel® Xeon® Scalable processors and Intel® QuickAssist Technology (Intel® QAT) these solutions are specially optimized for packet processing, encryption and compression-based NFV workloads. These solutions include Lenovo Ethernet switches to support the data network and management network. The physical infrastructure management is provided by Lenovo XClarity Administrator.

### Qualified NFVI Configuration

Lenovo qualified the infrastructure shown below to be compliant with the Base configuration reference design of Intel Select Solution for NFVI.

Table 1: Lenovo supported configuration for Intel Select Solution for NFVI certification (Base)

Item	Description	Qty
Server	Lenovo ThinkSystem SR650	1
Processor	Intel® Xeon® Platinum 8176 28C 165W 2.1GHz processor	2
Memory	ThinkSystem 32GB TruDDR4 2667MHz RDIMM (total 768GB)	24
NIC (integrated)	ThinkSystem 10Gb 4-port SFP+ LOM (uses Intel X722 1/10 GbE)	1
NIC	Intel XXV710-DA2 PCIe 25Gb 2-Port SFP28 Ethernet Adapter	2
Storage (NVMe)	ThinkSystem U.2 Intel P4500 2TB Entry NVMe PCIe 3.0 x4 Hot-Swap SSD	2
Storage (boot)	ThinkSystem 2.5" Intel S4500 480GB Entry SATA 6Gb Hot-Swap SSD	2
Intel QAT	Intel QuickAssist Adapter 8970 (PCIe) Add in Card (AIC)	1
<b>Additional hardware/software components available pre-integrated for a rack level Lenovo NFVI solution</b>		
1GbE switch	Lenovo RackSwitch G8052	1
10GbE switch	Lenovo RackSwitch G8272	1
25GbE switch	Lenovo ThinkSystem NE2572 RackSwitch	1
100GbE switch	Lenovo ThinkSystem NE10032 RackSwitch	1
Operating System	Red Hat Enterprise Linux 7.4	1
Systems Management	Lenovo XClarity Administrator software	1

## ThinkSystem SR650 SR630 servers for packet processing, encryption and compression-based NFV workloads.



## Acceleration for Virtual Network Functions

Intel QuickAssist Technology (Intel QAT) is cost- and power-efficient hardware built with crypto acceleration and compression capabilities that could be leveraged to free up CPU cycles for data center workloads. It is well suited for Software Defined Networking (SDN) and Network Functions Virtualization implementations on Intel architecture-based servers. Intel QAT is ideal for Co SPs workloads:

- 4G LTE and 5G encryption algorithm offload for mobile gateways
- VPN traffic acceleration, support for IPsec and SSL acceleration
- Compression/decompression

Intel QAT and Data Plane Development Kit (DPDK) are core technology components of the Intel Select Solution for NFVI Reference Design. Intel requires compliant platforms to implement DPDK software and provide sufficient connectivity to the Intel QAT engines for common compute-intensive NFV workloads.

Lenovo works closely with NFV ecosystem partners and open communities in enabling and testing interoperability of the NFV stack. ThinkSystem servers and switches provide the robust backbone needed for operators to virtualize their network functions.

## For More Information

To learn more about Lenovo Reference Architectures for CoSPs visit <https://networkbuilders.intel.com/ecosystem/lenovo>

## Why Intel Select Solutions on Lenovo infrastructure



Key benefits of deploying an Intel Select Solution from Lenovo include:

- Simplified evaluation. New workload integration and the transition to software-defined infrastructure are two areas where IT managers spend more time and money sorting through endless options, and searching for optimal solutions. Intel Select Solutions through Lenovo are tightly specified in terms of HW and SW components to eliminate guesswork and accelerate decision-making.
- Fast and easy deployment. With predefined settings and rigorous system-wide tuning, Intel Select Solutions on Lenovo infrastructure are designed to increase efficiency in IT's testing process, speed time to service delivery, and increase confidence in solution performance.
- Workload-optimized performance. Lenovo configurations have met or exceeded Intel Select Solution design goals to deliver a guaranteed performance threshold for the workload and are built on the latest Intel architecture foundation including the recently-launched Intel® Xeon® Scalable platforms.

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